P520i Series User Training

P520i & Consumables

Agenda

- P520i
  - Features, Functions, Benefits
  - New Features/Upgrades
  - Hands-on Operation
  - Competitive Overview
- Consumables/Media (Cards, Ribbons, Laminates)
  - Features, Functions, Benefits

P520i

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P520i Printer & Laminator

The P520i printer with built-in laminator produces high quality, high secure plastic cards. It is designed primarily for applications that require durable, long life cards.

Features	Function	Benefits
32 bit processor & PCB Architecture	1. Can receive and process data simultaneously.	1. Prints and laminates very quickly 2. YMCK & 1.0 mil lamination 110 cards per hour YMCK & 0.6 mil lamination 120 cards per hour 3. When batch printing P520 prints one card while simultaneously laminating another card.
4Mbytes Memory standard	1. Edge to edge printing standard 2. Error recovery (2 full color images, YMCKO)	1. Optional memory is not needed for edge to edge printing. 2. Automatic error recovery and saves time.
Metal Enclosure	1. Strong metal enclosure 2. Transparent viewing window on cover 3. Two easy-grip handles on front of cover	1. Robust construction for more reliable operation 2. Transparent window is convenient to see printer operations 3. Allows for easy opening of cover
Polycarbonate Print Engine Frame	1. Polycarbonate ribbed frame designed for high strength and rigidity 2. Frame is made up with only two interlocking pieces	1. Rugged engine frame prevents damage during shipping or if accidentally dropped 2. Can easily be repaired without special tools. 3. Uses same proven reliable print engine as P310 and P420 printers
Flip Over Design	1. Polycarbonate flip system designed for high strength and rigidity 2. New mechanism 3. No micro switch sensor	1. Lighter 2. Faster and quieter 3. No adjustment; can easily be repaired without special tools

P520i Features

Reject Card Box	1. Holds 20 cards (internal (firmware) counter) 2. Use flipper module to direct rejected cards 3. Audible and LCD Warning Message when tray is full 4. Push-push Door System	1. Defective cards are separated from correct cards 2. Can easily be accessed (front of the printer) 3. User friendly
Cleaning Cartridge	1. Cleaning cartridge cleans 1000 cards 2. Reusable, only adhesive roller needs replacing 3. Cartridge design, blue color	1. Minimize missing dots and color registration problems, less down time for higher production throughput, and increases security of database 2. Low cost consumable item 3. Easy to replace and easy to identify as user feature
Card Gate Design	1. A simple lever to set card thickness 2. Card thickness can be set from 10-50 mils 3. Blue color lever	1. Easy to select card thickness no adjustments required 2. Slide the lever to the desired card thickness setting 3. Indicate user feature
Automatic print ribbon synchronization	1. Automatically synchronizes ribbon when the print head is unlatched and latched	1. Can not print on the wrong color panel and eliminates ribbon cutting
Automatic laminator synchronization	1. Automatically synchronizes laminate patch material when the laminator is unlatched and latched	1. Allows the laminate patch to be correctly positioned on each card
Ribbon system	1. Can only be installed in one direction 2. New spindles & cores system designed with slots & grooves 3. Higher capacity, 300 images (YMC), 200 images (YMCK), 350 images (YMCKO), 250 images (YMCKOK), and 1500 images (monochrome).	1. Can not accidentally reuse old ribbons or install backwards 2. Easy to install, self-aligning. It also prevents ribbon slipping which causes registration problems 3. Requires less user intervention, less down time and higher production throughput 4. 43% more ribbon capacity than P500
Magnetic Encoder Option	1. Magnetic head drive roller is engaged only when encoding is required. 2. Can be installed without special tools	1. Prevents scratching of card surface when encoding is not performed 2. Higher quality card image 3. Easy for field support
Card Feeder Design	1. Enclosed 2. Transparent Feeder Cover 3. Weight is directly integrated into the Feeder Cover 4. Capacity: up to 100 cards (30mil), 300 cards (10mil) 5. Can feed one card at a time	1. Protects cards from dust 2. Card capacity can be seen without having to open enclosure 3. Can't lose the card weight 4. Higher card capacity 5. Feeding one card at a time is more convenient for user applications
Output Hopper Design	1. Capacity: up to 100 cards (30mil), 300 cards (10mil) 2. Card Hopper is detachable 3. Transparent	1. Matches Card Feeder capacity 2. Easy to unload cards 3. Card capacity can be seen from side view required for batch printing

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P520i Features

Features	Function	Benefits
Flash based Firmware	1. Firmware can be down loaded via parallel port	1. Easy to upgrade to new firmware, do not have to remove printer case.
Warning Tone	1. Alerts printer errors 2. Provides audible feed back when front panel is accessed	1. Easy to identify printer error messages
USB & Parallel Interface	1. P520 comes standard with both USB interface and Centronics parallel interface. 2. USB allows set up of Daisy-chain printers 3. USB allows faster data transfer	1. Can use parallel today and allows for USB connection at a later time. 2. Ability to connect multiple printers for high volume production applications. 3. 45 times faster data transfer than standard parallel interface.
Control Panel	1. Two line LCD Display – displays printer status (line 1) and laminator status (line 2). Other functions displayed: • Printer and laminator maintenance functions • Printer and laminator settings • LCD display can be seen standing up or sitting down • Support of English & European characters standard • Two LEDs (same convention as P310) • Two front panel buttons (used to operate LCD menu functions)	1. Very User-friendly 2. Easy to diagnose error messages 3. Easy to determine settings of printer 4. Tells User what mode of operation printer is in.
Windows 2000 Compatibility	1. Print Driver is compatible with various operating systems: Windows 95/98, NT 4.0, and Windows 2000	1. Allows quick and easy set up to most operating systems
Shipping Packaging	2. Double walled 3. Removable locking plastic tabs 4. Modular ship kit design	2. High strength – survive a 4' drop test 3. Reusable without tape 4. Customizable to include accessories and misc. ship kits
Enclosure Colors	1. New Eltron gray	1. New identity and easy to identify
User's Manual	1. Easy to follow User's Manual with trouble shooting guide and pictures.	1. User friendly and easy to use
Operator Help Guide	1. Quick and easy reference guide to printer operation and user maintenance procedure 2. Easy to read index tabs and many graphics	1. Allows user to quickly find information regarding basic operations, LED indicators, media, laminating, cleaning procedures, and troubleshooting. 2. Quick reference for users
Manual Holder	1. Permanent transparent manual holder on back of printer	1. Manual and Help Guide storage – prevents important documents from being misplaced.
One Page Quick Start	1. Step by step reference guide for setting up printer without using Manual or Operator Help Guide.	1. Step by step instructions allow user to set printer very quickly and easily without reading entire users Manual.

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P520i Ribbons and Cards

Zebra TrueColours Printing Ribbons	
Part Number	**Description**
800015-148	6 Panel Color Ribbon - 170 images (3 Dye Sub, 2 Blk Resin, 1 Clear Overlay - YMCKOK)
800015-140	5 Panel Color Ribbon - 200 images (3 Dye Sub, 1 Blk Resin, 1 Clear Overlay - YMCKO)
800015-180	5 Panel Color Ribbon - 200 images (3 Dye Sub, 2 Blk Resin - YMCKK)
800015-145	4 Panel Color Ribbon - 250 images (3 Dye Sub, 1 Blk Resin - YMCK)
800015-170	3 Panel Color Ribbon - 300 images (3 Dye Sub - YMC)
800015-150	2 Panel Black Ribbon - 500 images (1 Black Sub, with 1 Clear Overlay)
800015-160	2 Panel Resin Ribbon - 500 images (1 Black Resin and 1 Clear Overlay)
800015-340	5 Panel Color Ribbon - 350 images (3 Dye Sub, 1 Blk Resin, 1 Clear Overlay - YMCKO)
800015-345	4 Panel Color Ribbon - 400 images (3 Dye Sub, 1 Blk Resin - YMCK)

Most common ribbons:

K

YMC

YMCK

YMCKK

Never apply a patch onto an “O” panel

	Premier Plus (PVC Composite) Blank White Cards
104524-101	Card, 30 mil (5 packs of 100)
104524-102	Card, 30 mil Low Coercivity Mag. Stripe (5 packs of 100)
104524-103	Card, 30 mil High Coercivity Mag. Stripe (5 packs of 100)

Use 104524-104 for UV printing

P520i Laminates

Zebra's TrueSecure 1 mil P500/P520i Carrier Based Laminate Patches (sold by the roll)	
Part Number	**Description**
800015-014	Clear with full coverage - 100 cards
800015-013	Clear with coverage for Smart Cards - 100 cards
800015-012	Clear with coverage for Mag Stripe Cards - 100 cards
800015-031	Clear with 1 side full coverage and 1 side Mag Stripe Card - 50 of each (100 patches)
800015-032	Genuine Secure Hologram 100/roll
800015-033	World Globe Hologram 100/roll
Zebra's TrueSecure 0.6 mil P500/P520i Carrier Based Laminate Patches (sold by the roll)	
800015-135	Clear with full coverage - 170 cards

P520i Varnish Overlays

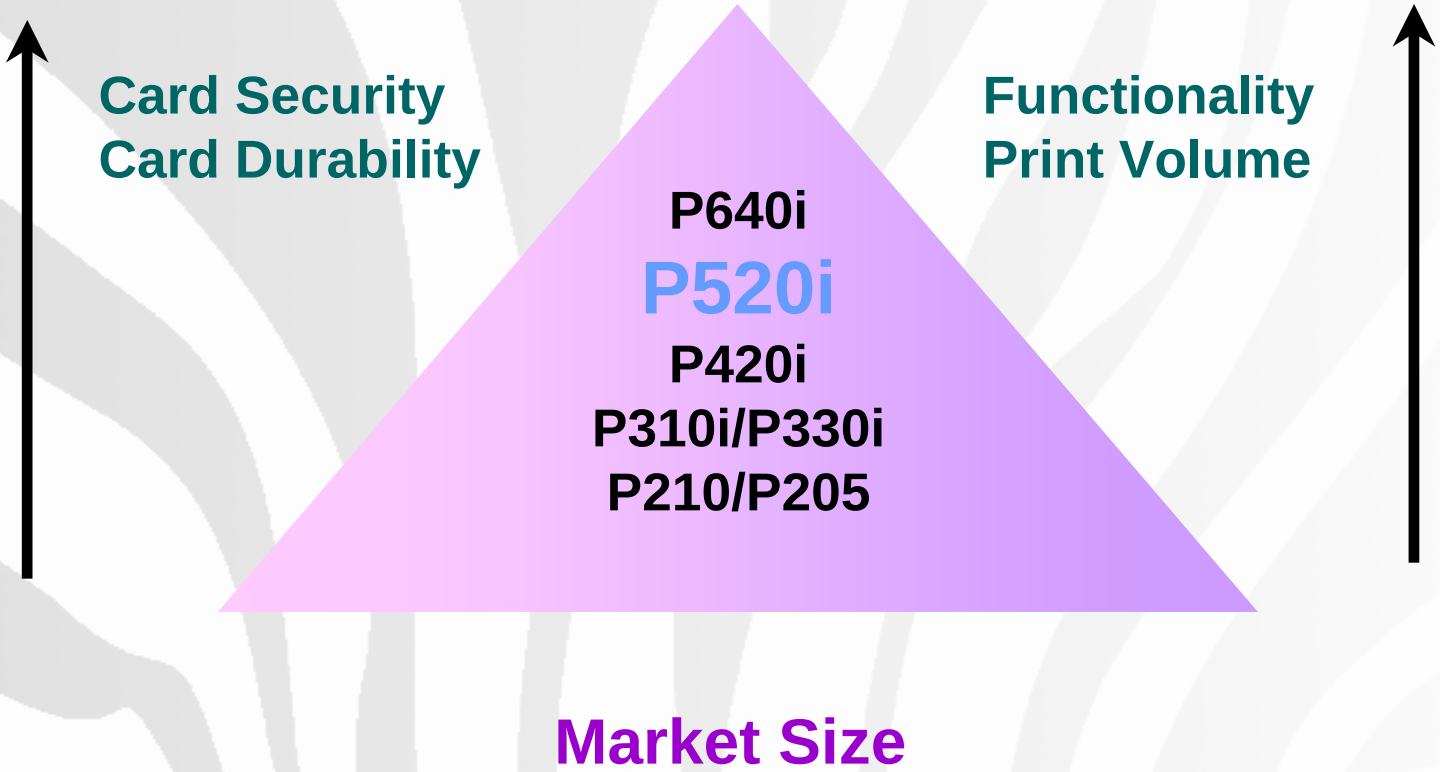
Zebra's TrueSecure Varnish Overlays to be applied on the PRINTER STATIONI)	
Part Number	**Description**
800015-122	Clear with full coverage - 350 cards
800015-120	Genuine Secure Hologram – 350 cards

You will need special cleaning material for the head when using these two above ribbons.

800015-131	Clear with full coverage - 350 cards to be applied on the LAMINATION STATION

For the three above products, you MUST apply a ribbon Overlay

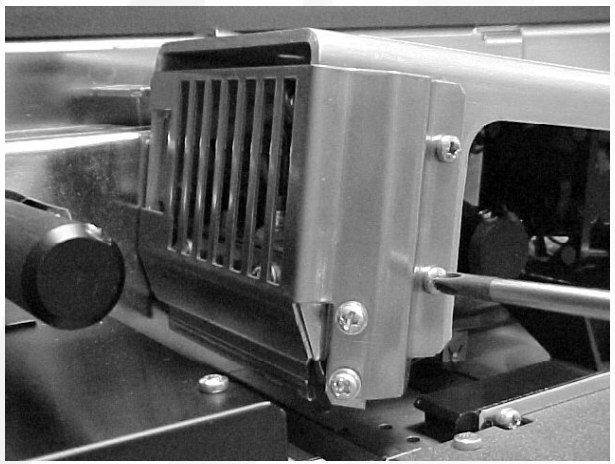
Where P520i Fits



New Features and Upgrades

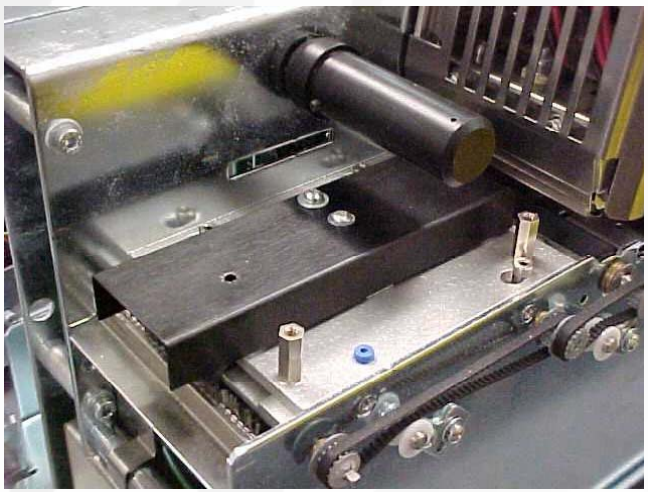
P520i Recent Upgrades

- LAMINATOR STOP PLATE
  - The laminator bracket will have a new front shroud plate which includes a stop plate device. This device prevents the laminator roller and the laminator platen roller from coming into contact and therefore helps prevents failures due to laminate ribbon adhering to the platen roller.



P520i Recent Upgrades

- REMOVABLE HEATSINK
  - This new feature allows for easy access to the heatsink / cooling area of the laminator system. No tools are required with this new removable design. This is designed as an easy upgrade and is intended for high volume applications where ease of access may help eliminate the need for a service call.



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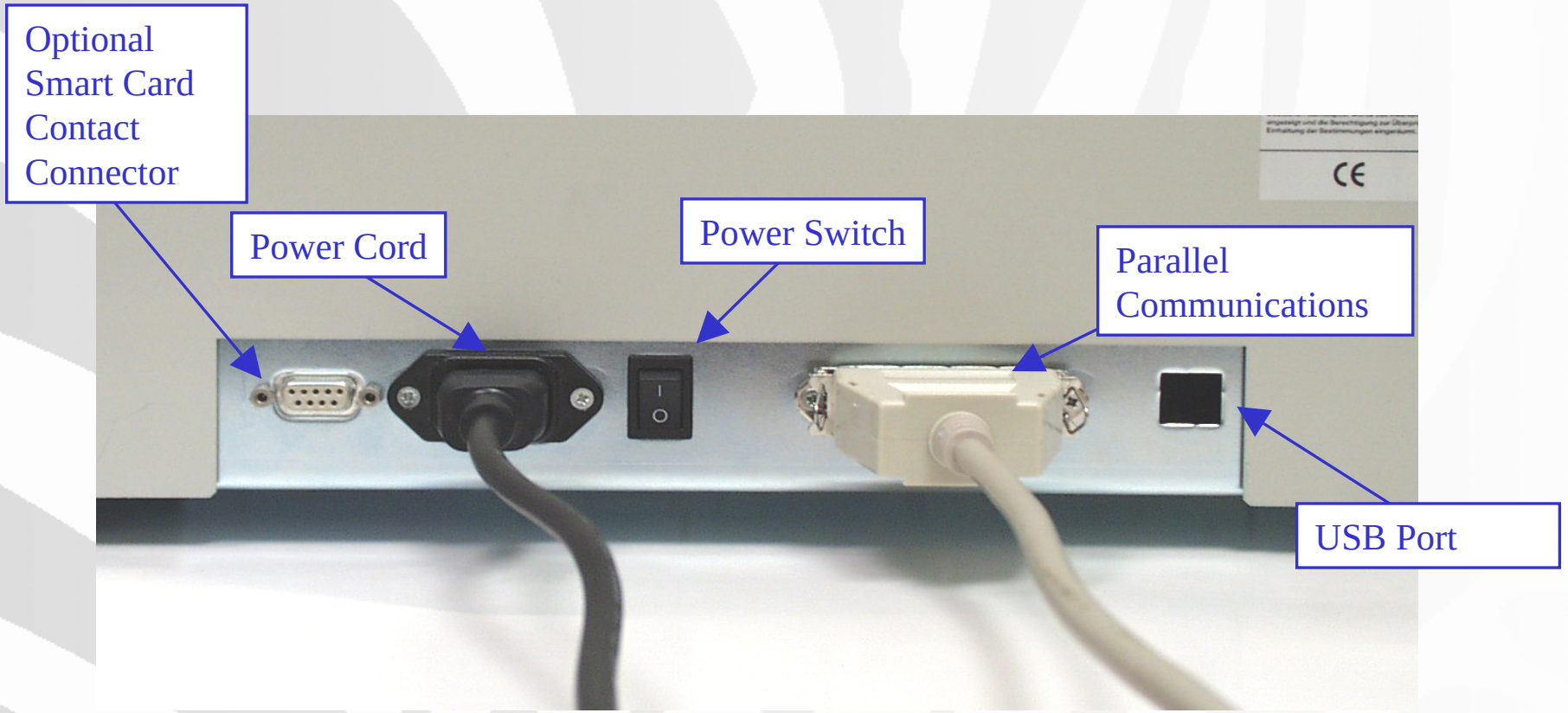
P520i Hands-on

Cable Connections



- Connect Power Cord and Parallel Cable as Shown

Card Hopper

- Connect the Card Hopper to the end of the printer

Installing The Cleaning Cartridge

- Insert the Cleaning Cartridge Into the

Ready / Ready

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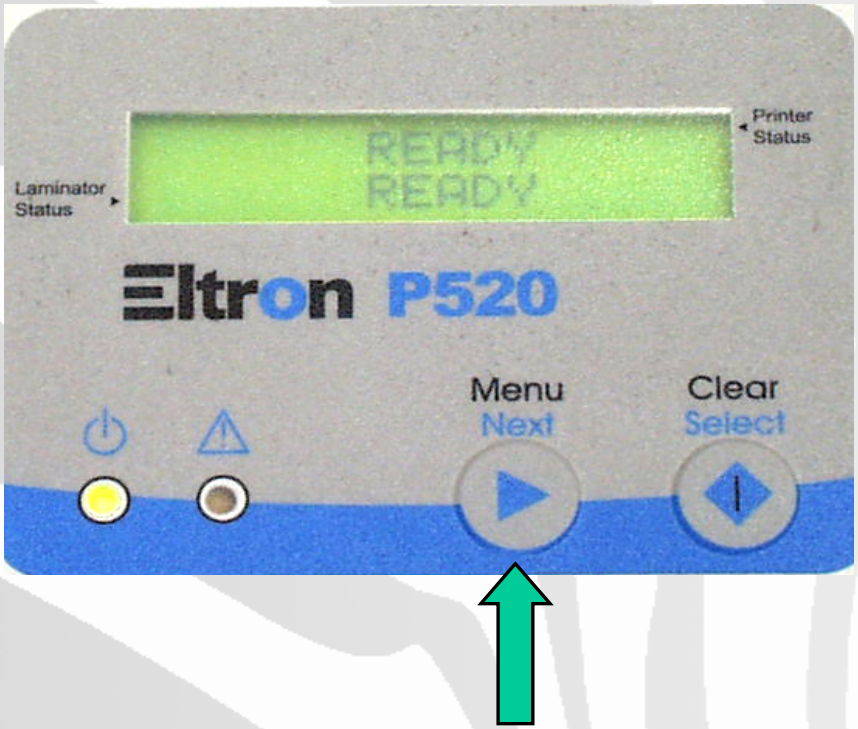
LED's

- Power LED
  - On when power is applied
- Alert LED (with beeper)
  - LED is on when an error condition exists
    - The Beeper will sound three alert “beeps” and the LCD display will show the associated error message

Menu / Next Button



- Menu / Next Button (Left)
  - Brings printer into the Menu Mode when pressed with the printer showing READY / **READY** on the LCD display
  - Used in Menu Mode to scroll through Menu Options
  - Beeps when pressed

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Clear / Select Button

- Clear / Select Button (Right)
  - Used to clear an error status (when LCD shows an error report and Alert LED is on)
    - **Also invokes automatic retry of the operation which gave the error**
  - Used in Menu Mode to select a Menu Option, thereby causing selection of the associated function or sub-menu
  - Beeps when pressed

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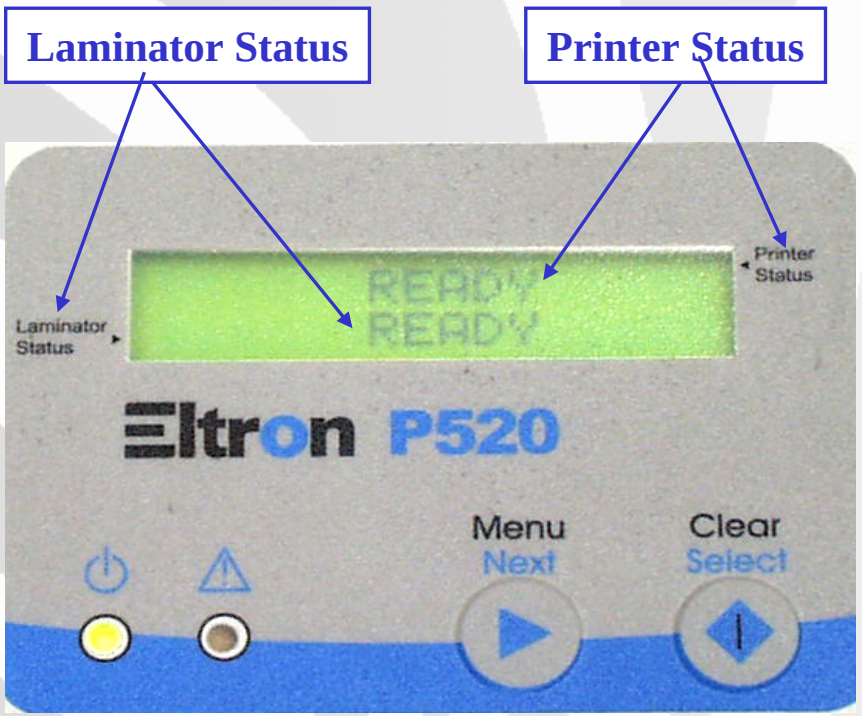
LCD



- LCD w/Back-light
  - Provides Dynamic Feedback of Printer Operation and Error Conditions to the User
  - Provides Interactive Selection of Additional Features
- Two Modes
  - Status and Error Reporting
  - Menu Mode, Which Provides Access To:
    - **Cleaning Functions**
    - **Printer Information**
    - **Laminator Information**
    - **Self Test Functions**

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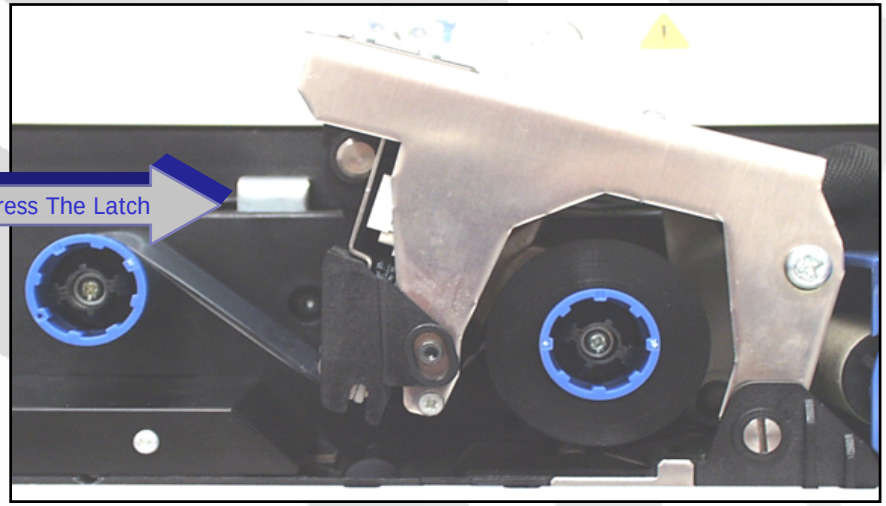
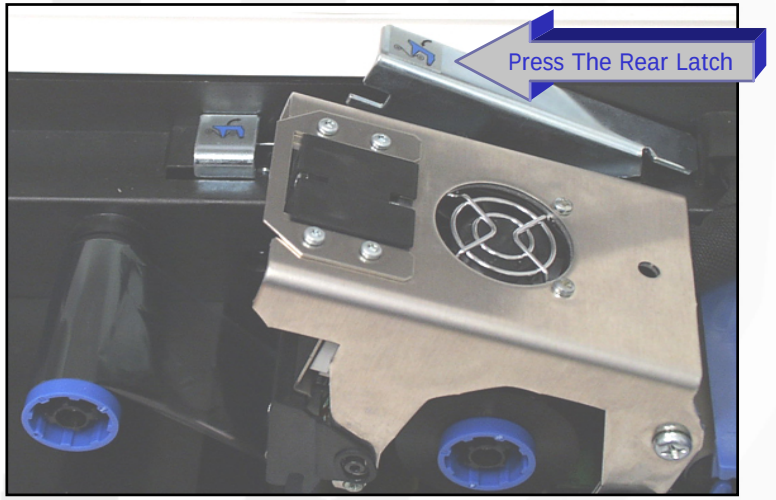
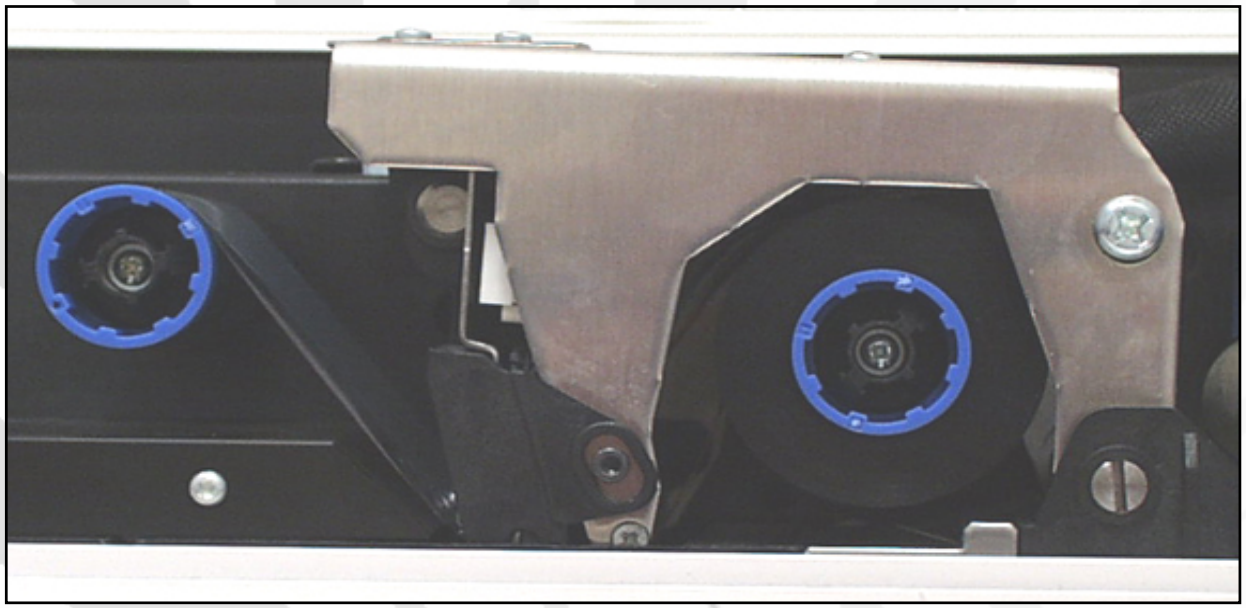
LCD

- LCD Functions and Messages Will Be Explained Later in This Presentation

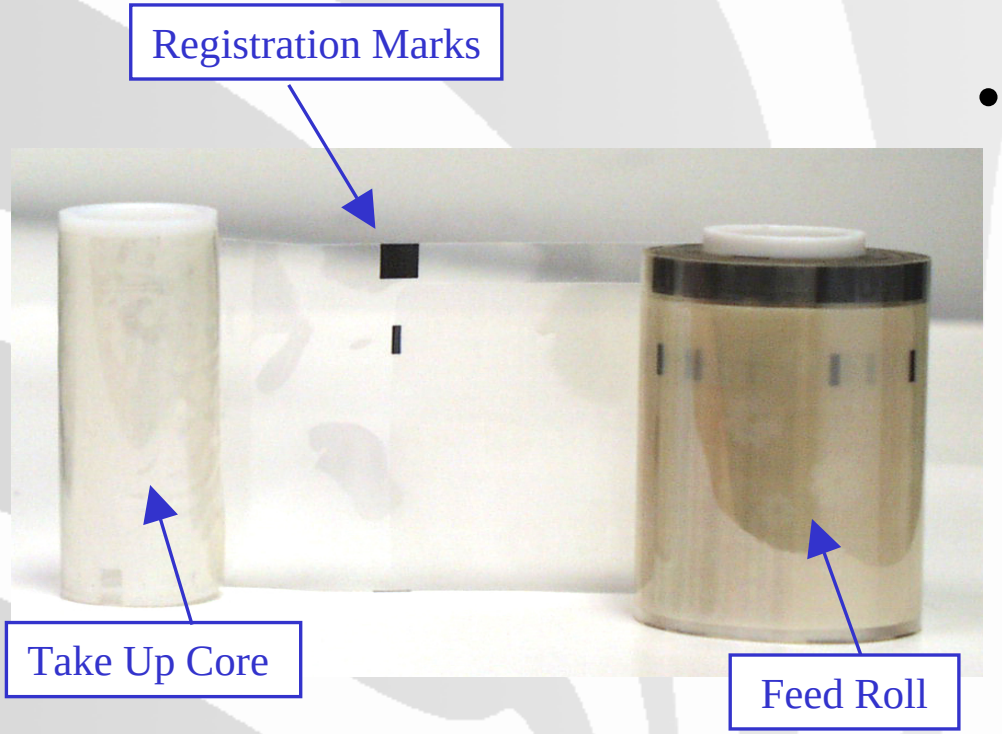
Installing Print Ribbon







Installing Laminate Ribbon



- Position the Laminate As Shown
  - The Registration Marks Should Be on Top and the slot in the take-up core should be on the bottom
  - Unwind Enough Laminate to Reach the Empty Take-up Core and Tape Down
  - Wind At Least 1 Complete Turn of Laminate Onto The Take-up Core

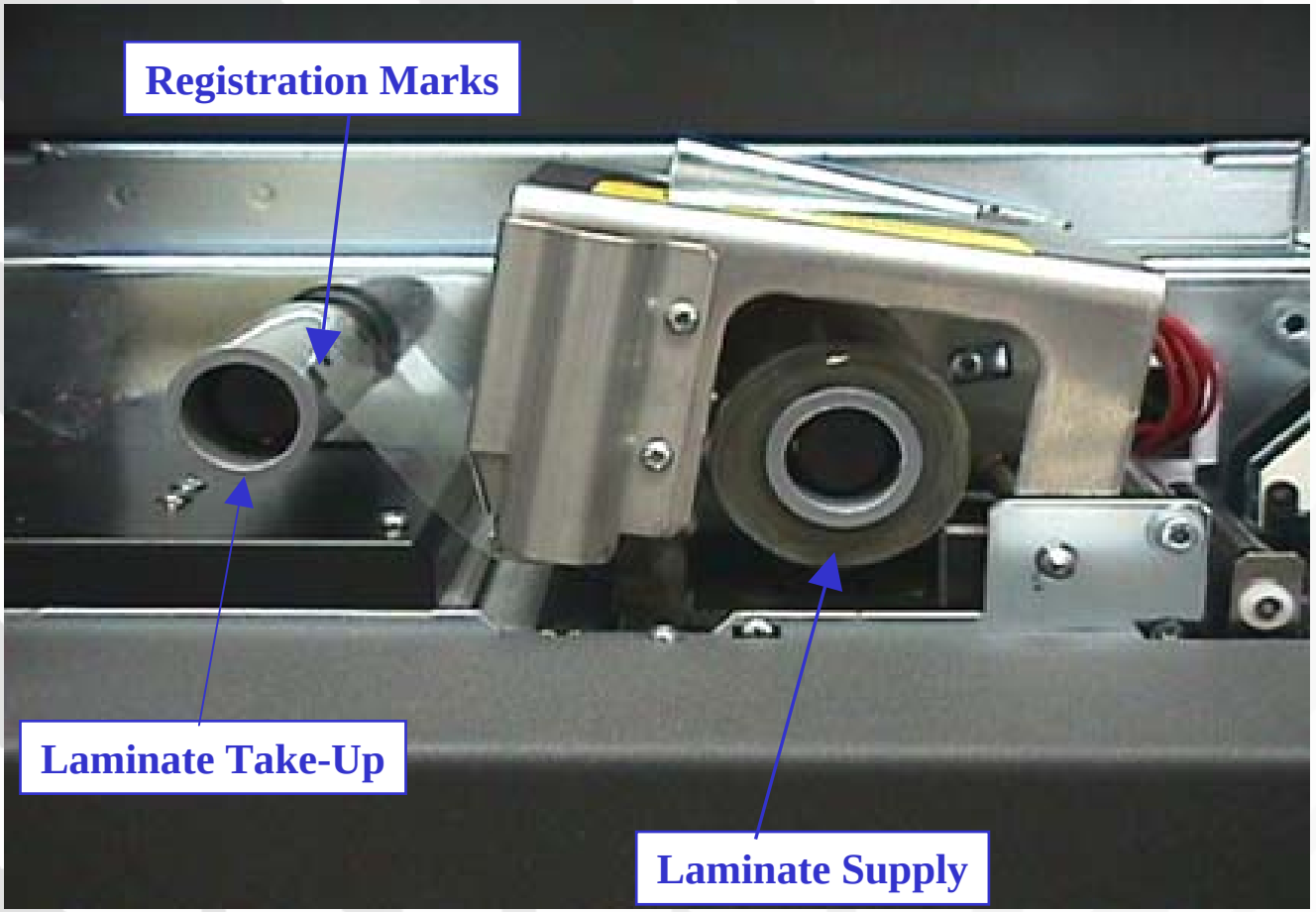
Installing Laminate Ribbon

- Open the Heat Roller

Installing Laminate Ribbon

- Unroll Enough Laminate to Span the Distance Between Supply and the Take-up Spindles and Loop Under the Heat Roller
  - Align the Supply and Take-up Cores With the Spindles
  - At the Same Time Slide Both the Supply and the Take-up Cores All the Way Onto Their Respective Spindles
  - Make Sure the Take-up Core Slots Align With the Guide Pin on the Take-up Spindle
  - Be Sure the Registration Marks Face the Front of the Printer
  - Close The Heat Roller
  - DO NOT TURN THE SPINDLE BY HAND TO TAKE-UP THE SLACK, The Printer Will Automatically Do This in the Next Step!

Installing Laminate Ribbon



Installing Laminate Ribbon

- Core Must Align With Guide Pin

Loading The Cards

1 - Empty

2 - Open

3 - Insert Cards

4 - Close

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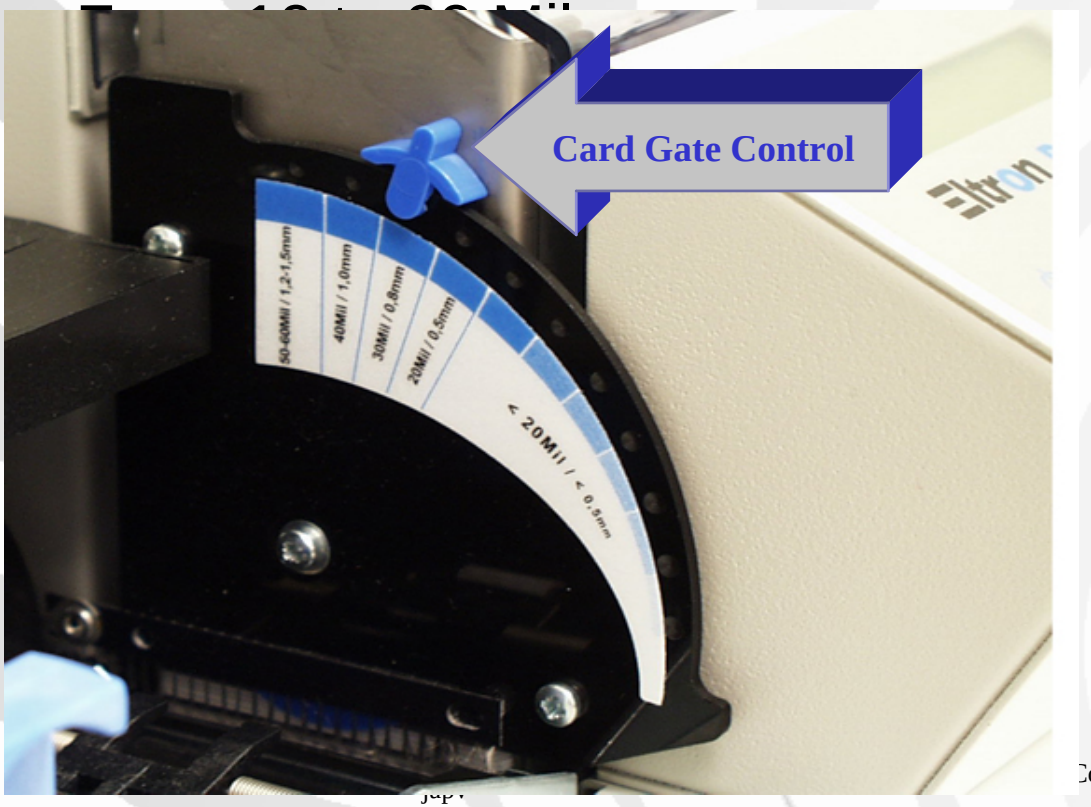
Adjusting Card Thickness

- Card Gate Control
  - Adjust the Gage for the Proper Card Thickness



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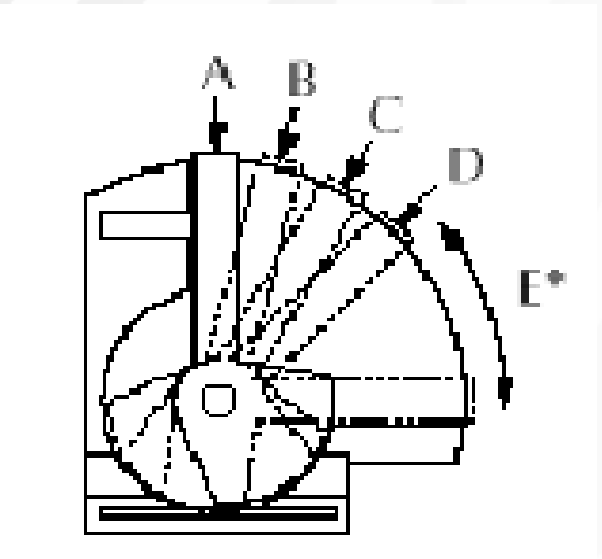
Card Gate Thickness

- Card Thickness :
  - A - 60 mil to 50 mil
  - B - 40 mil
  - **C - 30 mil**
  - D - 20 mil
  - E - Less than 20 mil



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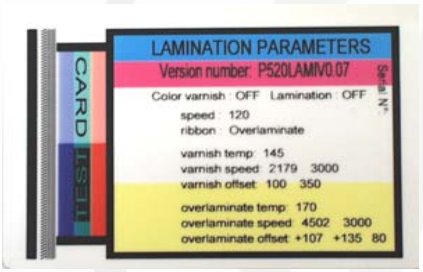
Testing Communications

- Print a Self Test Card From the Windows Driver
  - From Windows Start Menu Access Printers
  - Right Click on the P520i Driver Icon
  - Select Properties
  - On the “General Tab” Select The “Print A Test Page” Button
  - The Printer Will Print a Windows Based Test Card
  - If No Test Card Is Printed There Is a Problem With the Communications From the Host to the Printer



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Cleaning

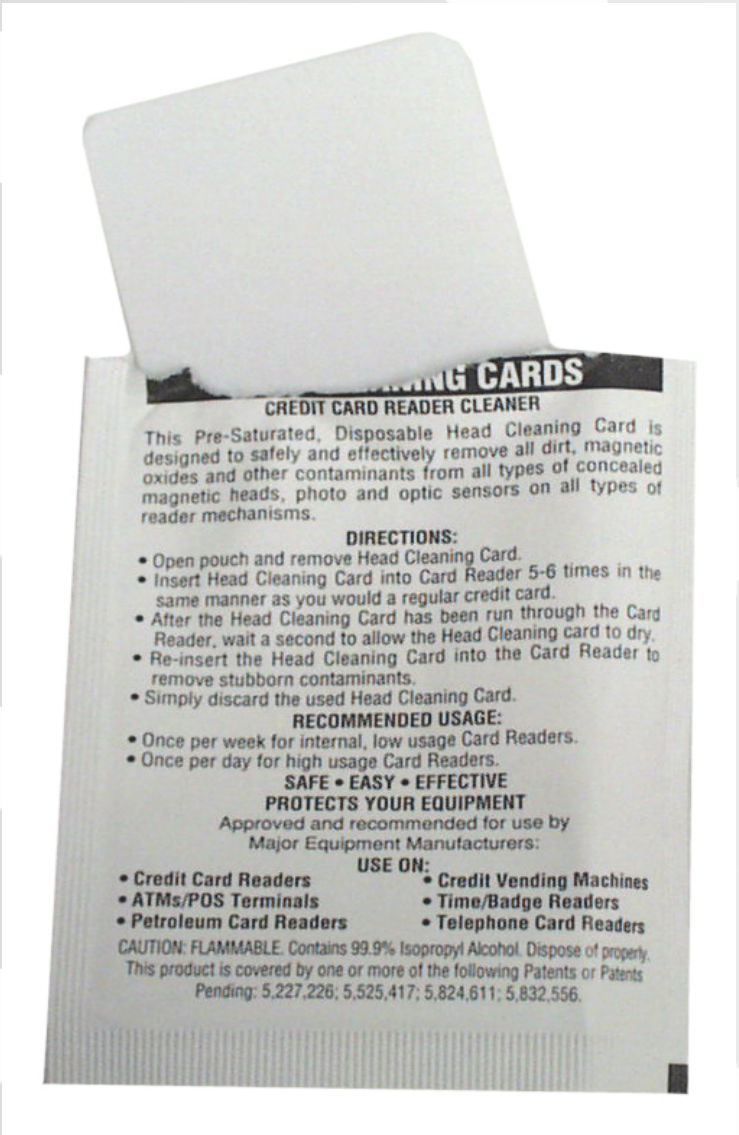
Maintenance

- For the P520i to Operate Properly It Is Important to Keep the Printer Clean and Free From Dust

Print Station Cleaning Rollers

- A New or Good Cleaning Roller Is Beige in Color
- When the Roller Gets Dirty the Color Will Change to Brown or Black

Cleaning Cards


CARDS
CREDIT CARD READER CLEANER
This Pre-Saturated, Disposable Head Cleaning Card is designed to safely and effectively remove all dirt, magnetic oxides and other contaminants from all types of concealed magnetic heads, photo and optic sensors on all types of reader mechanisms.
DIRECTIONS:
• Open pouch and remove Head Cleaning Card.
• Insert Head Cleaning Card into Card Reader 5-6 times in the same manner as you would a regular credit card.
• After the Head Cleaning Card has been run through the Card Reader, wait a second to allow the Head Cleaning card to dry.
• Re-insert the Head Cleaning Card into the Card Reader to remove stubborn contaminants.
• Simply discard the used Head Cleaning Card.
RECOMMENDED USAGE:
• Once per week for internal, low usage Card Readers.
• Once per day for high usage Card Readers.
SAFE • EASY • EFFECTIVE
PROTECTS YOUR EQUIPMENT
Approved and recommended for use by Major Equipment Manufacturers:
USE ON:
• Credit Card Readers
• ATMs/POS Terminals
• Petroleum Card Readers
• Credit Vending Machines
• Time/Badge Readers
• Telephone Card Readers
CAUTION: FLAMMABLE. Contains 99.9% Isopropyl Alcohol. Dispose of properly.
This product is covered by one or more of the following Patents or Patents Pending: 5,227,226; 5,525,417; 5,824,611; 5,832,556.

- The Cleaning Card Must Be Used Immediately Upon Opening to Prevent the Alcohol From Evaporating

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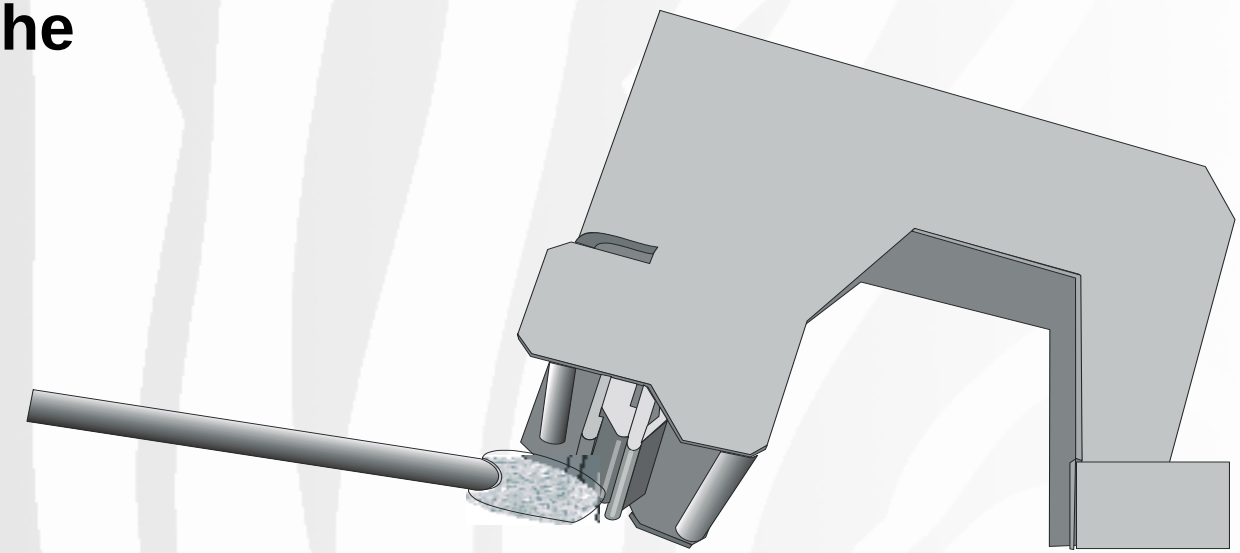
Cleaning The Print Head

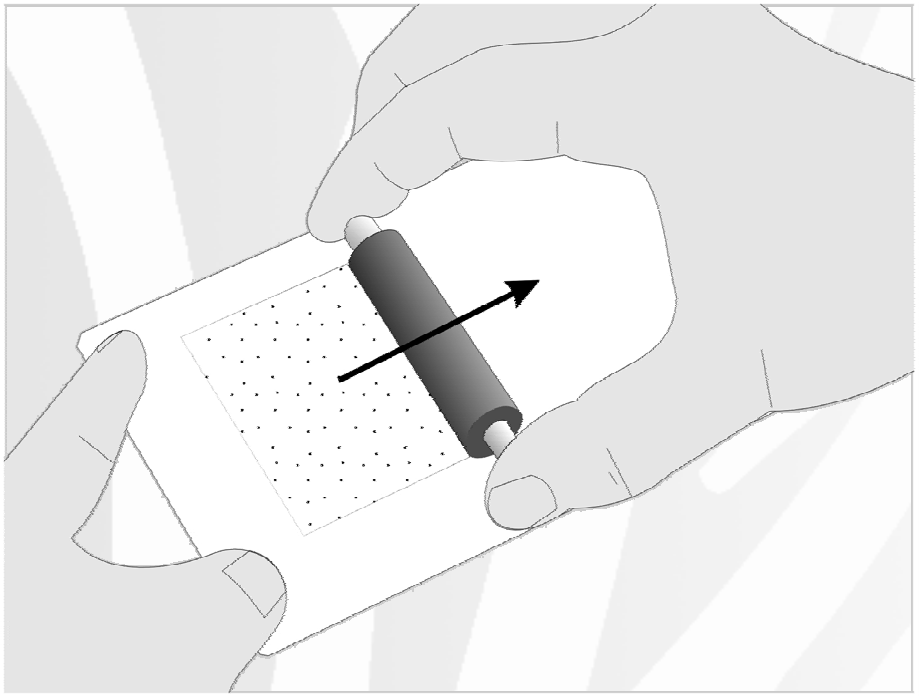
- Open the Lid
- Gently Rub an Alcohol- Moistened Swab Across the Print Head From the Back of the Printer to the Front
- **Do Not Soak The**
- **Print Head**



Laminator Cleaning Rollers

- Clean Both the Upper Cleaning Roller and the Lower Cleaning Roller With Alcohol and let Dry OR...

Cleaning Upper Cleaning Roller



- The Upper Cleaning Roller Can Also Be Cleaned Using the Sticky Side of a Label
- Hold the Roller As Shown and Roll Along the Label

Printer Cleaning Menu

- “Clean Printer” Will Be Displayed
- Press the Clear / Select Button
  - Cleaning Process Will Begin
  - After Cleaning Cycle, the Cleaning Card Will Be Deposited in Reject Card Hopper
- If the Ribbon Is Still in the Printer, “Remove Ribbon” Will Be Displayed
  - Remove the Ribbon
  - Press the Clear / Select Button
  - Cleaning Process Will Begin

Driver Set-up

Printing a Card

Competitive Overview

Consumables Overview

Plastic Cards

- PVC and Composite PVC cards are recommended for use with color and monochrome card printers.
- 10 and 30 mil thickness
  - (30 mil cards are 0.76 mm thick. 10 mil cards are 0.25 mm thick).
  - All cards meet ISO 7810 ID-1, CR-80 specifications (2.125” x 3.375”) (53.98mm x 85.72mm).

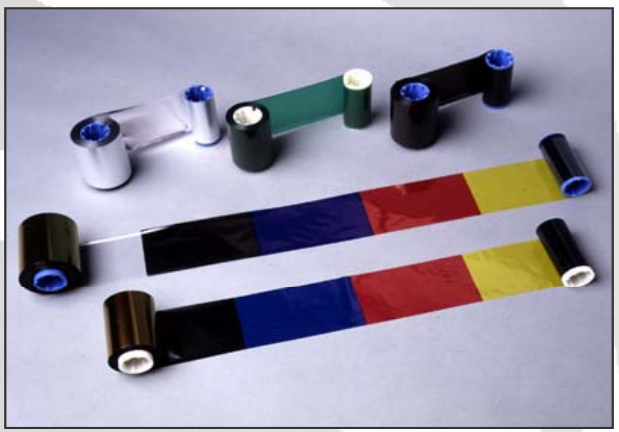
Premier (PVC) Cards - pure PVC material

Premier Plus (Composite PVC) Cards

- Composite PVC cards are stronger because they are made up of a polyester core and sandwiched with PVC (60% PVC and 40% polyester core).

- ***Note:*** *All 10 mil cards and adhesive back cards are not recommended for color dye sublimation printing and neither for lamination. Use 30 mils min on a P520i and composite card if laminating.*

Print Ribbons

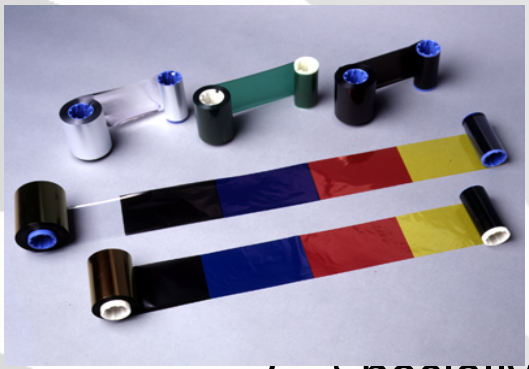


Dye sublimation is a process in which the ribbon heats up and undergoes a chemical change that turns the ink into a gaseous state which then permeates to the plastic card. The gaseous state is not considered a health hazard under normal use as specified in our card printer User's Manuals.

- 3 Primary Colors: Yellow (Y), Magenta (M) and Cyan (C)
- Additional Panels: Black monochrome or black dye sub (K) and a varnish overlay panel (O)
- Dye Sublimation is a reversible process, so the printed image must always be protected by overlay coat (varnish overlay or laminate patch).
- Ribbons available: YMC, YMCK, YMCKK, YMCKO, YMCKOK, KdO (black dye sub), KrO (black resin)

Dye Sublimation Ribbon

Key Advantages:



1 - Quality and consistency (from lot to lot) of the primary colors Y, M and C.

2 - Quality of the protection (the varnish overlay (O-panel), good resistance to the UV and dye migration to block the sublimation reversible process.

3 - Specially formulated ribbon that ensures conformance with Zebra printer setting defaults (no need for user to change default settings)

4 - Unique silicone based back coating which helps to extend the life of the printhead.

5 - Certified and tested with Zebra printers

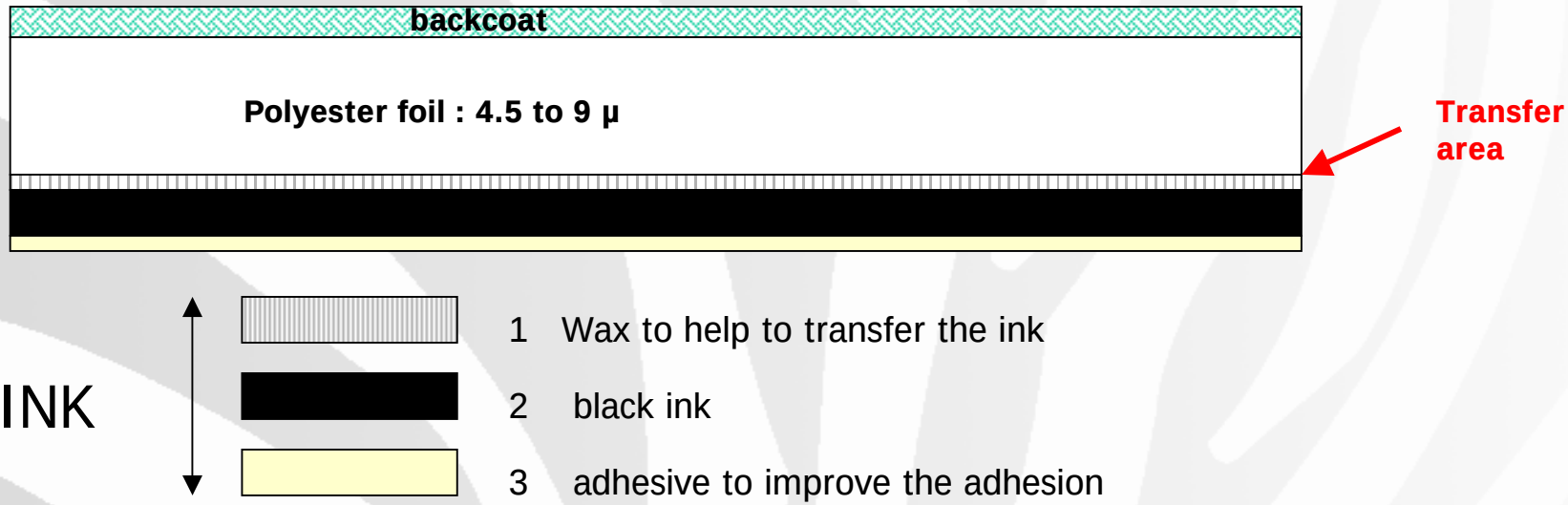
6 - Guaranteed compatibility with Zebra printers

Thermal Transfer Ribbon

Thermal Transfer Ribbon (Monochrome Ribbon) is made of a polyester foil (carrier), a special backcoating on one side and ink on the other side.

- The **polyester** foil is the carrier of the ink
- The **backcoat** passes under the printhead, so this special silicone based backcoat is slippery to protect the printhead.
- The **ink** is transferred via a thermal printhead. As the ribbon passes under the heated printhead the ink is transferred to the card. The ink is formulated to be resistant to chemical and physical stress. This ink could be constituted with 1 to 3 different coatings.
- Thermal transfer is an irreversible process
- **Colors available**: Black, red, green, blue, gold, silver, white, scratch off gray (1000 & 1500 images per roll)

Thermal Transfer Ribbon


backcoat
Polyester foil : 4.5 to 9 µ
Transfer area
INK
1 Wax to help to transfer the ink
2 black ink
3 adhesive to improve the adhesion

Key Advantage: Unique silicone based back coating which helps to extend the life of the printhead. Ribbons pass smoothly under printhead. No abrading against printhead and no build up under printhead. Patented ribbon core and spindle helps eliminate slipage at the ribbon take-up spindle and ensures proper ribbon loading.

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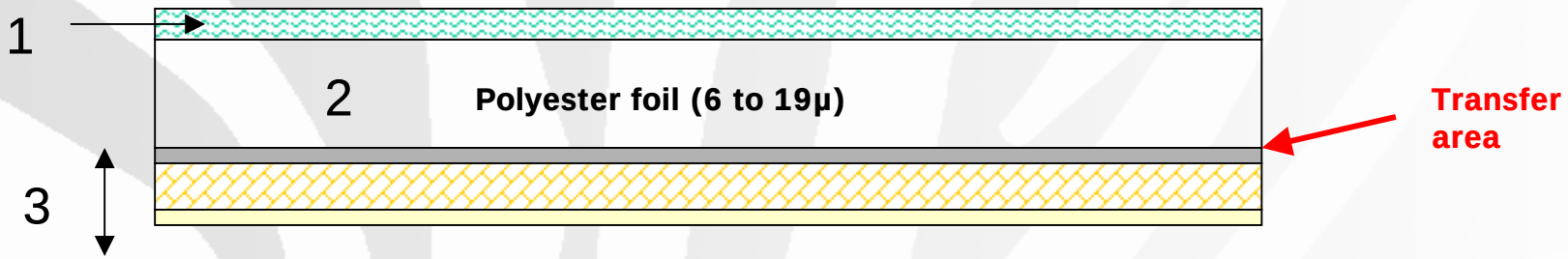
Varnish Overlays

Varnish overlays use the same concept as thermal transfer monochrome ribbon. Varnish overlay consist of: polyester foil (carrier), special backcoat, and ink. The ink transfer can be done by a printhead or by a hot roller (P520i Lamination station).



1 Backcoat for a printing with a printhead
no Backcoat for a printing with a hot roller (P520i Laminator station)

2 polyester foil : it is the carrier

3 the ink is often a 3 to 4 coats :

- wax release coat
- emboss coat
- high refractive index coating (metal layer)
- adhesive coat

Varnish Overlays

Varnish overlays can be used on O-panel of dye sublimation ribbon, directly on the PVC card, or on a monochrome printing.

These ribbons are used to increase protection of the printed image:

• on monochrome printing and on O-panel printing: increased the resistance to the Taber abrasion

It is necessary to apply the hologram or the varnish on the O-panel of the dye sublimation ribbon :

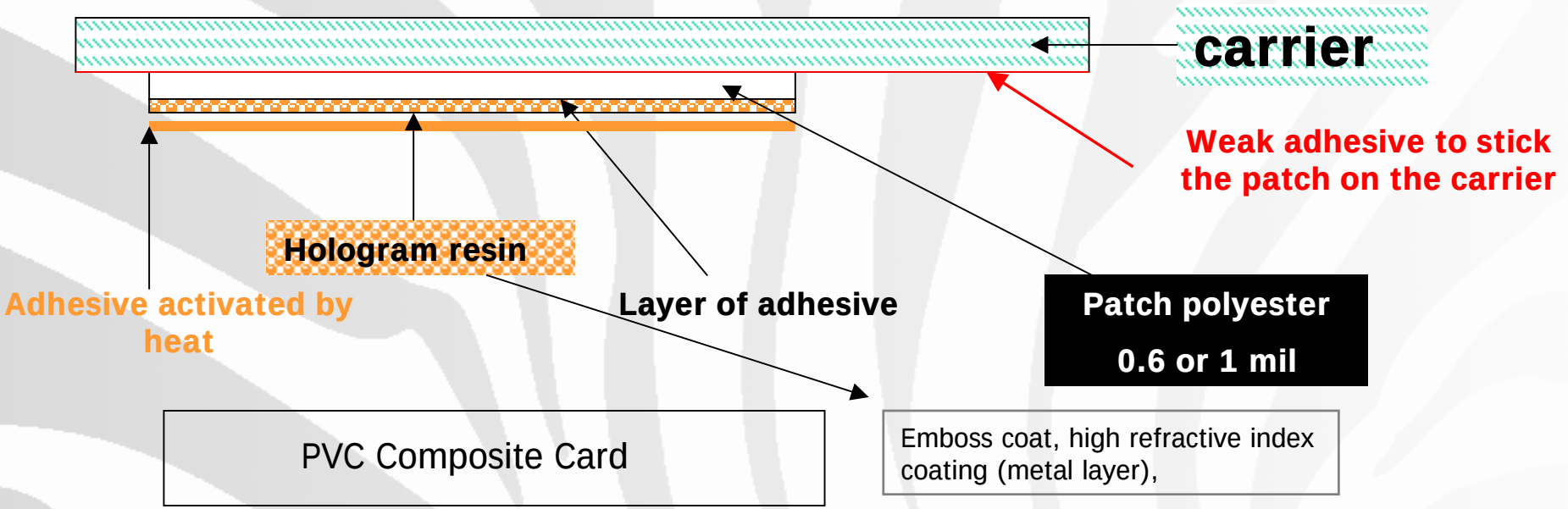
• Taber abrasion resistance is near double

	YMCKO	YMCK + varnish	YMCKO + Varnish
Taber abrasion CS 10 – 500g	250	200	450

Laminates

WHAT IS A LAMINATION PATCH ?

It is an additional protection made of polyester to increase the card life and/or provide additional security by use of a hologram. The patch could have a thickness of 0.6 mil or 1 mil and is applied by a hot roller (P520i Laminatio n station) only.


carrier
Weak adhesive to stick the patch on the carrier
Hologram resin
Adhesive activated by heat
Layer of adhesive
Patch polyester
0.6 or 1 mil
PVC Composite Card
Emboss coat, high refractive index coating (metal layer),

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Why Use A Laminate?

- All printed plastic cards containing any useful information are subject to counterfeiting, alteration, duplication, and forgery (Safety Prevention).
- Card applications subject to these types of card threats should use laminate to protect the card. Laminates are available in clear and with custom holographic security features (Safety Prevention).
- Lamination Will Also Prolong the Life of a Card by:
  - Shielding the printed image from UV Light (fading of image)
  - Preventing Dye Migration
  - Reduces Normal Wear From Handling
  - Reduces Wear Caused by Magnetic Stripe Readers

Laminates

	Clear patch 1 mil	Clear patch 0.6 mil	Holo patch 1 mil	Holo patch 0.6 mil	YMCKO
Taber CS10 – 500g	5000	2500	5000	2500	250
Water 4 hours immersion	OK	OK	Ok	OK	OK
Water 24 hours Immersion	OK	OK	OK	OK	OK
Alcohol 4 hours Immersion	OK	OK	OK	OK	OK
Suntests 96 hours %fading on gray color	35	45	45	35	55

These ribbons are applied on the Dye sublimation printing without the O-panel, the patch adhesive are incompatible with the overlay resin.

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Laminates- Expected Life of Card

Material	Expected Life
• PVC + K resin (2.5 micron coating)	12 to 24 months
• PVC composite + K resin Overlay	12 to 24 months (2.5 micron coating)
• PVC composite + YMCKO (5-8 micron coating)	18 to 36 months
• PVC composite +0.6 mil polyester(16 micron) laminate patch with or without security feature	3 to 5 years
• PVC composite + 1.0 mil polyester (23 micron) laminate patch with or without security feature	5 to 7 years

Questions